Department of Toxic Substances Control

Alan C. Lloyd, Ph.D.
Agency Secretary
Cal/EPA

8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

April 21, 2005

Mr. Peter Broderick
Project Manager
U.S. Army Corps of Engineers
Sacramento District
CESPK-ED-EB
1325 J Street
Sacramento, California 95814-2922

APPROVAL OF THE U.S. ARMY CORPS OF ENGINEERS' SITE INSPECTION WORKPLAN, FORMER CAMP BEALE YUBA AND NEVADA COUNTIES, CALIFORNIA

Dear Mr. Broderick:

The Department of Toxic Substance Control (DTSC) appreciates the U.S. Army Corps of Engineers' (USACE's) cooperation in the development of the Site Inspection (SI) Workplan. DTSC has reviewed the SI Work Plan for environmental concerns to the State. Since it is likely that munitions or explosives of concern (MEC) will be found and will need to be treated, this treatment action needs to be authorized through the issuance of a permit or approval of the treatment action under an approved Removal Action Workplan (RAW) or Remedial Action Plan.

To achieve the objective, DTSC has revised the SI Work plan to a SI/RAW. The revised SI/RAW was sent out for public review and comment. Comments were received from the California Department of Fish and Game (DFG), which requested, essentially, three changes. DFG requested additions to the list of species to be avoided and associated avoidance measures. They also requested a monthly status report on avoidance of all species of concern, and, finally, they asked to be consulted prior to any blow-in-place activities where there is the potential for endangered species within 500 feet. Enclosed are the revised sections and DTSC's approval page which needs to be inserted into your copy of the SI/RAW. This letter provides the DTSC approval for doing the work as proposed in the revised SI/RAW.

Should you have any questions or comments regarding this subject matter, please feel free to contact Mr. Ed Walker, of my staff, at (916) 255-4988.

Sincerely,

Anthony J. Landis. P.E.
Chief
Northern California Operations
Office of Military Facilities

Enclosures

cc: Ms. Victoria Lake (w/o enclosures)
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✓ Mr. Edward Walker (w/enclosures)
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Department of Toxic Substances Control
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Sacramento, California 95826

ENCLOSURE A

No.	DFG Comment	Response
1	1. *Section 7.1 Assessment of Applicable or Relevant and Appropriate Requirements (ARARs) and Appendix I, Table 1.6-1 ARARs, Former Camp Beale.* There are a number of State ARARs that pertain to biological resources that are not included in Table 7-1. DFG-OSPR is providing a complete list of ARARs in the enclosed table. Please incorporate these ARARs into the SI/RAW.	DTSC will include a complete list of ARARs in the enclosed table as provided by DFG-OSPR
2	2. *Section 7.2.2 Biological Resources.* The discussion of biological resources at Camp Beale is based, in part, on the Preliminary Cultural and Biological Resources Analysis of the Camp Beale Study Area (Jones & Stokes Associates 1999). DFG-OSPR previously requested a copy of this document from USACE to review, but it has not been received. We would like to request a copy of this document again to review its content for completeness and accuracy.	DTSC supplied an electronic copy of the Preliminary Cultural and Biological Resources Analysis of the Camp Beale Study Area (Jones & Stokes Associates 1999) to DFG on January 5, 2005.
3	3. *Table 7-2 (and Appendix I Table 3.4-3) Federally Listed and Additional Considered Species that May Be Affected by Activities on Former Camp Beale.* Please include the State listing statuses for the species shown in the table. Also, add the following special-status plant species to the table: long-eared owl, yellow warbler, northwestern pond turtle, Brandegee's clarkia (*Clarkia biloba*), dwarf downingia (*Downingia pusilla*), and legenere (*Legenere limosa*). For completeness, all special-status species addressed in the avoidance and minimization plan (Appendix C, Attachment D (note: this is also labeled Attachment A)) should be in the table.	DTSC added the State listing statuses for the species shown table 7-2 and Appendix I Table 3.4-3 and add the additional special status species as supplied by DFG.
4	4. *Section 7.3.2 Biological Resources, Potential Effects on Sensitive Species and Sensitive Habitats.* In addition to federally listed threatened and endangered species, address the protection of special-status species of interest to the State. These species include California black rail, tricolored blackbird, long-eared owl, burrowing owl, yellow warbler, northwestern pond turtle, Brangegee's clarkia, dwarf downingia, and legenere.	DTSC addressed the protection of the special-status species of interest to the state similarly to the originally listed species.

No.	DFG Comment	Response
5	5. *Section 7.4.2.2 Mitigation by Avoidance.* This section should include a description of the steps that will be taken to avoid biological resources of concern to the State, in addition to federally listed threatened and endangered species and their habitat. In addition a monitoring plan should be developed to include - survey dates covered in the report - project activities conducted during the period - number and location of blow-in-place performed - areas surveyed - names, association, and expertise of biologists conducting the surveys - biological survey methods - sensitive species and habitats targeted during the surveys - general biological description of the areas surveyed - sensitive species and habitats identified during the surveys, and their locations (please show on map) - instances where sensitive biological resources had potential to be impacted by project activities, and steps take to avoid or minimize impact - record and content of contact with DFG or USFWS - summary of impacts to biological resources - measures implemented or planned to mitigate for impacts to biological resources	DTSC will include a description of the steps that will be taken to avoid biological resources of concern to the State, in addition to federally listed threatened and endangered species and their habitat as provided by DFG. As discussed all 500 ft. separation distances will be modified to 300 ft. with notification and approval from DFG for blow in place activities if activities are within 500 ft. of sensitive habitats listed in the avoidance measures provided by DFG. Surveys in general and specifically for the Coast horned lizard and Western Burrowing Owl will be conducted during geophysical survey. The results of the monitoring (areas surveyed, number and location of blow-in-place, habitats avoided, will be provided to DFG with the relevant parameters.
6	6. *Appendix C, Attachment D (also labeled Attachment A) and Appendix I, Attachment A – Avoidance and Minimization Protocols for Threatened and Endangered Species, Species of Concern, and their Habitats.* This section should provide avoidance and minimization protocols for all species listed in the revised table of special-status species with potential to occur at Former Camp Beale (see Comment 3 above). Biologists conducting site habitat restoration should consult with DFG-OSPR to develop appropriate restoration specifications.	The separation distances and notification requirements are identified in comment 5.
7	7. *Appendix K, Section 6.1 Listed Species.* Provide the State listing statuses for the species in this section and include additional species that are considered sensitive by the State.	The State listing statuses for the species have been included in this section. Also the additional species that are considered sensitive by the State have been added.

No.	DFG Comment	Response
8	8. Appendix K, Table 6 Potential Environmental Contaminants. There are a number of potential environmental contaminants identified that may be present at Former Camp Beale and may pose risks to ecological receptors. While more complete analyte lists may be used for samples once the remedial investigation (RI) stage is reached, it should be noted that a complete suite of metals, as well as semivolatile organic compounds (SVOC) and explosive compounds should be analyzed once areas of potential contamination are better identified (see attachment that shows an analyte list used at an explosive ordnance disposal site at Beale AFB). Additionally, where chemical warfare agents are identified, these agents and their associated contaminants should be added to the target analyte list for samples taken in the affected area. Please discuss the need for conducting an ecological risk assessment (ERA) as part of the RI and outline the methods and timeframe for performing an ERA. DFG-OSPR believes that contaminants of ecological concern (COEC) identified in a screening assessment should include: 1) inorganic chemicals exceeding ambient conditions and 2) chemicals potentially causing toxicity. Therefore, inorganic chemicals with maximum detected concentrations greater than the 95th percentile of the background data should be considered COECs. All organic chemicals detected on-site should be included as COECs. For chemicals with non-detect results, one-half of the sample quantitation limit (SQL) should be used as a proxy value for that sample when calculating descriptive statistics. When the chemical is detected in less than half of the total samples collected, a 95 UCL is not calculated, and the maximum detected value should be used.	As part of this initial Site inspection some areas suspected as being open burn open detonation areas will be investigated for contaminates. A field sample plan will be generated by The United State Corps of Engineers and made available for DFG review. An ecological risk assessment is to be included in the remedial investigation phase of the project and will also be available for DFG review.
9	9. *Initial Study/Negative Declaration (IS/ND) Section 4. Biological Resources.* The statement that sensitive wildlife species include vernal pool tadpole shrimp and conservancy fairy shrimp is misleading, as there are other sensitive species in addition to these two invertebrates. The text also states that sensitive plant species are not commonly located at the site; this is misleading because there are several special-status plant species known from the area. Because the IS/ND is a CEQA document, special-status species of concern to the State must also be addressed. Please give the State listing status of species already mentioned in the text, and describe additional special-status species that may be affected by the project (e.g., burrowing owl, valley elderberry longhorn beetle, Brandegee's clarkia, and legenere).	DTSC will reword the Initial Study/Negative Declaration (IS/ND) Section 4 to state that there may be several sensitive wide life species present. Further DTSC will remove the statement that sensitive plant species are not commonly located at the site. The State will be listing the status of species mentioned in the text, and describe additional special-status species that may be affected by the project (e.g., burrowing owl, valley elderberry longhorn beetle, Brandegee's clarkia, and legenere The additional state species will also be added. Please refer to comment 3 for the addition of State listed Species.

Limitations

The Department of Toxic Substances Control (DTSC) has reviewed the United States Army Corps of Engineers (USACE) proposed Site Inspection Work Plan for the Former Camp Beale (SI). DTSC has modified the SI to meet California environmental regulations pertaining to the anticipated treatment of munitions and explosives of concern found during the proposed work. DTSC provided input to USACE on the proposed SI and what is expected to be accomplished from this work. DTSC agrees that this effort will provide valuable information in developing a decision document on future actions within areas of high probability for munitions and explosives of concern, but will not be sufficient to determine areas of no further action. While all comments were not adequately addressed by USACE original version DTSC would like to facilitate progress towards site clean up. With the addition of the change pages supplied to the USACE and renaming the document the "Site Inspection / Removal Action Work Plan Former Camp Beale" DTSC approves the work plan.

Signed _____ Date 4-20-05

Anthony Landis, PE
Branch Chief
Northern California Office of Military Facilities
Department of Toxic Substances Control

Table 7-1. Applicable or Relevant and Appropriate Requirements (ARARs), Former Camp Beale

Requirement	Citation	Description	Type	A/RA/TBC	Comments
Federal					
Resource, Conservation, and Recovery Act (RCRA) Subpart M (Military Munitions Rule)	40 CFR Part 266	Identifies when military munitions become a solid waste, and, if these wastes are hazardous, the management standards that apply.	Contaminant specific	TBC	Recovery, collection, and on-range destruction of MEC and munition fragments are not subject to hazardous waste regulations or permits. MEC discovered in burial pits or trenches could be considered solid waste in accordance with the rule. However, this requirement is not applicable until the state implements the federal Military Munitions Rule as a state-implemented federal requirement.
RCRA	40 CFR Part 261.23	Identifies characteristics of reactivity, including explosives.	Contaminant specific	A	Solid waste that meets the characteristics of reactivity should be treated as hazardous.
RCRA, Identification and Listing of Hazardous Wastes	40 CFR Part 261.3	Requires that waste be analyzed to determine if it represents RCRA hazardous waste based on established lists and hazardous waste characteristics, such as reactivity and toxicity.	Action specific	A	There is the possibility that an analysis of excavated soils may be required to determine if they are classified as an RCRA hazardous waste.
Fish & Wildlife Coordination Act	16 U.S.C. 661 et seq.	Prohibits actions from harming local fish and wildlife.	Location specific	RA	Activities are projected to occur in areas populated with wildlife. Provisions of this act should be followed.
Endangered Species Act (ESA)	16 U.S.C. 1533	Prohibits federal actions from modifying critical habitats or jeopardizing the continued existence of protected endangered or threatened species.	Location specific	A	Prior to and throughout the field activities, all steps necessary should be conducted to minimize the impacts to listed plant and animal species and their habitats (see Section 2.1.6). All on-site employees should undergo a briefing regarding the species present and measures for precluding impacts to those species and their habitat.

Table 7-1. Applicable or Relevant and Appropriate Requirements (ARARs), Former Camp Beale

Requirement	Citation	Description	Type	A/RA/TBC	Comments
Clean Air Act Amendments (CAAA) of 1977 and 1990	42 U.S.C. 7401 et seq. 40 CFR 50 et seq.	Establishes primary and secondary air quality standards necessary to protect health, welfare, plant and animal life, buildings, materials, and visibility. The responsible agency is the U.S. EPA.	Location specific	A	Activities may occur that would require air quality monitoring for PM_{10}, sulfur oxide, particulate matter, ozone, nitrogen dioxide, and lead.
Clean Water Act (CWA) of 1972 and 1977	33 U.S.C. 1251 et seq.	Establishes the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so they can support in the protection and propagation of fish, shellfish, and wildlife.	Location specific	A	Section 404 of the CWA is the principal federal regulatory program protecting our remaining wetland resources.
Archaeological Resources Protection Act (ARPA)	16 U.S.C. 470	The ARPA prohibits unauthorized excavation of, and sets standards for protection of, archaeological resources. Prohibits disclosure of archaeological resources by federal agencies.	Location specific	A	If any sites (properties) are uncovered or affected by the fieldwork, proper procedures must be in place under the ARPA to evaluate and protect cultural resources.
National Historic Preservation Act (NHPA)	16 U.S.C. 470	Requires action to be taken to locate, identify, evaluate, and protect cultural resources.	Location specific	A	If additional properties are uncovered or existing sites are affected by intrusive MEC sampling, conditions of the NHPA must be followed.
Executive Order No. 11988	42 F.R. 26951	Order to reduce risk of flood loss and minimize impacts of floods on human safety.	Location specific	TBC	If activities include major construction or excavation work, planning and procedures must be in place to reduce flooding.
Executive Order No. 11990	42 F.R. 26961	Order to minimize the obstruction, loss, or degradation of wetlands during federal projects.	Location specific	TBC	If activities or sites are within areas containing wetlands proper planning and procedures must be in place to protect wetlands.

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Requirement	Citation	Description	Type	A/RA/TBC	Comments
Occupational Safety and Health Administration (OSHA)	29 CFR Part 1910.120	Defines the manner in which hazardous waste and emergency response actions must be carried out. Covers emergency response operations for the release of, or substantial threat of, hazardous substances without regard to the location of the hazard.	Action specific	A	The possibility of a fire or explosion will exist during intrusive MEC clearance activities. All site personnel must be in compliance with 29 CFR Part 1910.120, requiring workers to be 40-hour health and safety trained with an 8-hour refresher. An annual medical surveillance examination is also required.
Hazard Communication	29 CFR Part 1910.1200	Specifies that the hazards associated with all chemicals produced or imported be evaluated, and that information concerning their hazards be transmitted to employers and employees.	Action specific	RA	All employees and visitors must be made aware of the hazards associated with MEC clearance and UXO demolition activities.
Public Affairs	40 CFR Part 300	Public affairs coordination must be conducted in accordance with directives for the CERCLA response action.	Action specific	A (HTW) RA (MEC)	Provisions of this code should be followed.
Transportation	49 CFR Parts 100-199	Regulates transport of hazardous substances in California.	Action specific	RA	Provisions of this code should be followed.
Federal Transportation Act	49 CFR Part 172.101	The DOT considers MEC "hazardous material" for manifesting purposes under the DOT regulations.	Action specific	A	Transportation of explosives to be used in the detonation of MEC as a means of on-site disposal must comply with DOT regulations. UXO-qualified personnel must inspect the loading of the explosives, and the transport vehicle must be appropriately placarded.

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Page 4 of 5

Requirement	Citation	Description	Type	A/RA/TBC	Comments
OSHA	29 U.S.C. 651-678	Regulates worker health and safety.	Action specific	RA	Under 40 CFR Part 300.38, requirements of the act apply to all response activities under the NCP.
State					
California Endangered Species Act	CESA Code 2080.2081	Protects endangered species from being exported or imported. Establishes authority permitting processes and mitigation requirements to protect endangered species.	Location specific	A	Disturbances to riparian, wetland habitats, or vegetation may require mitigation such as contouring the ground surface to pre-project elevation and replanting native vegetation in appropriate ratios.
California Health and Safety Code (HSE)	HSC Division 20 Chapter 6.5, 6.8	Establishes regulations and incentives to ensure generators of hazardous waste to employ safe handling practices, treatment, recycling, and destruction of hazardous waste prior to disposal. Also establishes a program for response authority for release, spills, disposal sites, and compensation for medical expenses resulting from injuries caused by exposure to releases of hazardous substances.	Action specific	TBC	Under Title 22, Section 66261.23, MEC is considered a hazardous waste. Provisions of this Code should be considered.
Drinking Water Primary Standards	Title 22, Sections 64431, 64443, and 64444	Established Maximum Contaminant Levels (MCLs) for public water systems.	Chemical specific	R/RA	Groundwater may be considered a potential source of drinking water. State MCLs are more stringent than federal MCLs. Applicable if HTW found n drinking water. RA if unsuitable for human consumption.
California Designated level Methodology for Waste Characterization and Cleanup Level Determination	Staff Report, California Regional Water Quality Control	Proposes a methodology for determining cleanup levels in soil based upon impact on groundwater.	Chemical specific	TBC	Can be used in determining cleanup levels in soil that are protective of groundwater quality.
Streambed Alteration Agreement	Section 1600-1606 of State Fish and Game Code	Protects flow, bed, and bank of streams and lakes.	Location specific	TBC	Project may require a CDFG Section 1603 under specific conditions for potential impacts to ephemeral streams or lakes.

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Requirement	Citation	Description	Type	A/RA/TBC	Comments
County Regulations					
Yuba County General Plan	Sec. 5.3 et. Seq.	Provides guidelines for protecting natural resources in Yuba County	Action Specific	TBC	Project activities must ensure conformance with county guidelines for protection of county natural resources.
Nevada County General Plan	Sec. 6 et. Seq.	Provides guidelines for protecting natural resources in Nevada County.	Action Specific	TBC	Project activities must ensure conformance with county guidelines for protection of county natural resources.

CFR = Code of Federal Regulations
CDFG = California Department of Fish and Game
DFG = Department of Fish and Game
DOT = Department of Transportation
EPA = Environmental Protection Agency
HRS = Hazardous Ranking System
MEC = ordnance and explosives
PM_{10} = particulate matter equal to or less than 10 microns in diameter
U.S.C. = United States Code
UXO = unexploded ordnance

Table 1

Table 1.6-1 Applicable or Relevant and Appropriate Requirements (ARARs), Former Camp Beale

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Fish & Wildlife Coordination Act	16 U.S.C. 661 et seq.	Prohibits actions from harming local fish and wildlife.	Location specific	RA	Activities are projected to occur in areas populated with wildlife. Provisions of this act should be followed.
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Nevada County General Plan	Sec. 6 et. Seq.	Provides guidelines for protecting natural resources in Nevada County.	Action Specific	TBC	Project activities must ensure conformance with county guidelines for protection of county natural resources.

Table 7-2. Federally Listed and Additional Considered Species that may be affected by Activities on Former Camp Beale

Common Name	Scientific Name	Federal Status	Comments
Invertebrates			
California linderiella fairy shrimp	*Linderiella occidentalis*	FSC	Vernal Pools
Conservancy fairy shrimp	*Branchinecta conservatio*	E[(c)]	Vernal Pools
Vernal pool fairy shrimp	*Branchinecta lynchi*	T[(c)]	Vernal Pools
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	Elderberry Trees
Vernal pool tadpole shrimp	*Lepidurus packardi*	E[(c)]	Vernal Pools
Fish			
Delta Smelt	*Hypomesus transpacificus*	T	
Central Valley steelhead	*Oncorhynchus mykiss irideus*	T[(b)]	
Central Valley winter-run Chinook Salmon	*Oncorhynchus tshawytscha*	E	
Amphibians			
California tiger salamander	*Ambystoma californiense*	T	
California red-legged frog	*Rana aurora draytonii*	T	
Reptiles			
Giant garter snake	*Thamnophis gigas*	T	Freshwater Wetlands
Birds			
Tricolored blackbird	*Agelaius tricolor*	FSC	Nesting Area
Western burrowing owl	*Athene cunicularia hypugea*	FSC	Possible Nesting Area
Swainson's hawk	*Buteo swainsoni*	FSC	Possible Nesting Area
Bald eagle	*Haliaeetus leucocephalus*	T, PD[(a)]	Wintering Area
California black rail	*Laterallus jamaicensis coturniculus*	FSC	Winter and Spring visitor.
Critical Habitat			
California tiger salamander		50 CFR 17	
Central Valley fall/late fall-run Chinook salmon		50 CFR 17.95 (e)	
Conservancy fairy shrimp		50 CFR 17.95 (h)	
Vernal pool fairy shrimp		50 CFR 17.95 (h)	
Vernal pool tadpole shrimp		50 CFR 17.95 (h)	
Hoover's spurge		50 CFR 17.96 (a)	
Hairy Orcutt grass		50 CFR 17.96 (a)	
Slender Orcutt grass		50 CFR 17.96 (a)	

Notes: (a) If delisted, species will still be protected for a 5-year monitoring period.
(b) Status pertains to Sacramento and San Joaquin Rivers and their tributaries.
(c) Critical habitat proposed 09/02.
-- = No listing status
CFR = Code of Federal Regulations
E = Endangered
FSC = Federal Species of Concern
PD = Proposed for Delisting
PT = Officially proposed (in the Federal Register) to be listed as Threatened.
SSC = Species of Special Concern
T = Threatened

Table 3.4-3. Federally Listed and Additional Considered Species that may be affected by Activities on Former Camp Beale

Common Name	Scientific Name	Federal Status	State Status	CNPS Status	Comments
Invertebrates					
California linderiella fairy shrimp	*Linderiella occidentalis*	FSC	--		Vernal Pools
Conservancy fairy shrimp	*Branchinecta conservatio*	E[(c)]	--		Vernal Pools
Vernal pool fairy shrimp	*Branchinecta lynchi*	T[(c)]	--		Vernal Pools
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	--		Elderberry Trees
Vernal pool tadpole shrimp	*Lepidurus packardi*	E[(c)]	--		Vernal Pools
Fish					
Delta smelt	*Hypomesus transpacificus*	T	T		
Central Valley steelhead	*Oncorhynchus mykiss irideus*	T[(b)]	--		
Central Valley winter-run chinook salmon	*Oncorhynchus tshawytscha*	E	E		
Central Valley fall/late fall-run Chinook salmon	*Oncorhynchus tshawytscha*	FC	SSC		
Amphibians					
California tiger salamander	*Ambystoma californiense*	T	SSC		
California red-legged frog	*Rana aurora draytonii*	T	SSC		
Foothill yellow–legged frog	*Rana boylii*	FSC	SSC		
Reptiles					
Giant garter snake	*Thamnophis gigas*	T	T		Freshwater Wetlands
Northwestern pond turtle	*Clemmys marmorata marmorata*	FSC	SSC		Riparian habitats
Coast horned lizard	*Phrynosoma coronatum frontale*	FSC	SSC		
Birds					
Tricolored blackbird	*Agelaius tricolor*	FSC	SSC		Nesting Area
Western burrowing owl	*Athene cunicularia hypugea*	FSC	SSC		Possible Nesting Area
Swainson's hawk	*Buteo swainsoni*	FSC	T		Possible Nesting Area
Bald eagle	*Haliaeetus leucocephalus*	T, PD[(a)]	E, FP		Wintering Area
California black rail	*Laterallus jamaicensis coturniculus*	FSC	T, FP		Winter and Spring visitor.
Double-crested cormorant	*Phalacrocorax auritus*		SSC		
Long-eared owl	*Asio otus*	-	SSC		Riparian habitats
Yellow warbler	*Dendrocia petechis*	--	SSC		Riparian habitats
Greater sandhill crane	*Grus canadensis tabida*	FSC	T, FP		Nesting and wintering
Long-billed curlew	*Numenius americanus*	FSC	SSC		Nesting
Bank swallow	*Riparia riparia*	FSC	T		
Yellow-breasted chat	*Icteria virens*		SSC		
Mammals					
Pallid bat	*Antrozous pallidus*		SSC		
Marysville kangaroo rat	*Dipodomys californicus eximus*	FSC	SSC		

Plants

Brandegee's clarkia	*Clarkia biloba*	SLC	2	1B
Dwarf downingia	*Downgia* pulsilla			2
Lengene	*Lengene limosa*	FSC		1B
Hoover's spurge	*Chamaesyce hooveri*	T	1B	1B
Hairy Orcutt grass	*Orcuttia pilosa*	E	E	1B
Slender Orcutt grass	*Orcuttia tenuis*	T	E	1B

Notes: (a) If delisted, species will still be protected for a 5-year monitoring period.
(b) Status pertains to Sacramento and San Joaquin Rivers and their tributaries.
(c) Critical habitat proposed 09/02.

-- = No listing status
CFR = Code of Federal Regulations
E = Endangered
FSC = Federal Species of Concern
PD = Proposed for Delisting
PT = Officially proposed (in the Federal Register) to be listed as Threatened.
SSC = STATE Species of Special Concern
T = Threatened
FP – STATE fully protected
FC – Federal Candidate Species
(CNPS) California Native Plant Society
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

Elderberry plants are considered a sensitive habitat because the federally listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus)* is dependent on the replants.

7.3 POTENTIAL IMPACTS OF SI FIELD ACTIVITIES

The field-work, as planned, may affect sensitive cultural and biological resources in and around the project site. Section 7.4 addresses minimization of these impacts.

7.3.1 Cultural Resources

Blown-in-place (BIP) detonations have the potential to affect cultural resources present within the project area. A detonation close to a potential cultural resource could diminish the integrity of, or completely destroy, that resource. Additional activities during the SI such as vehicular traffic and heavy equipment work can affect cultural resources. Therefore, application of mitigation measures is required to reduce potential impacts. Impact minimization measures for the protection of cultural resources are discussed in subsection 7.4.1.

7.3.2 Biological Resources

A BIP or other intentional detonation could affect vegetation in the immediate area. Small areas (2 to 4 feet diameter and 1 to 2 foot deep craters) would be disturbed but would revegetate naturally. The noise associated with field crews and detonations could disrupt wildlife on the site. Noise and ground disturbance from a blast has the potential to scare wildlife in the area, causing them to move away. The disturbance should cause only a temporary shift in their activities.

Disruption of mobile species and foraging habitat for raptors could occur. The ground disturbance could destroy animal burrows and cause individual mortality of less mobile species such as nesting birds, small mammals, and reptiles. Although the disruption should only be temporary, the application of mitigation measures, if required, could reduce impacts. Impact minimization measures for biological resources are discussed in subsection 7.4.2. Every effort will be made to avoid field activities during the nesting season of sensitive bird species.

Potential Effects on Sensitive Species and Sensitive Habitats

No recent sensitive species surveys have been conducted at Former Camp Beale. Consequently, the specific areas in which these species have not yet been determined. Sensitive wildlife and plant species could be affected by project activities.

Federally and State listed threatened and endangered species and their habitat could be affected by project activities resulting in take of listed species. Take could be avoided by having each field crew accompanied by a USFWS-approved biologist or biological monitor who would survey for any listed species or their

7.4.2.2 Mitigation by Avoidance.

Incorporated into the field activities will be sensitive-area and sensitive-species mitigation by avoidance. In order to avoid adverse effect to any federally and state listed threatened or endangered species and their habitat, a USFWS-approved biologist or biological monitor will accompany each field team and survey for listed species and their habitat. Listed species and their habitat would be avoided. This measure would ensure that there would be no effect on listed species. In order to comply with the MBTA, disturbance of nesting and breeding activities could be avoided by restricting project activities to the nonbreeding season. Pre-project surveys should be conducted if activities are occurring during the nesting season (March-September) in areas where transects may affect nests to ensure MBTA-listed species protection. These pre-project surveys could also ensure that wetlands are identified and avoided. See Appendix I, Attachement A

Revision by DTSC 11/4/2004

ATTACHMENT A

AVOIDANCE AND MINIMIZATION PROTOCOLS FOR THREATENED AND ENDANGERED SPECIES, SPECIES OF CONCERN, AND THEIR HABITATS

ATTACHMENT A

Avoidance and Minimization Protocols for Threatened and Endangered Species, Species of Concern, and their Habitats

Invertebrates

Vernal Pools Species

Branchinecta conservatio - Conservancy fairy shrimp (E)
Branchinecta lynchi - vernal pool fairy shrimp (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Avoidance and Minimization Measures:

1. Establish a 250-foot buffer from the outer edge of all hydric vegetation associated with vernal pools and vernal swales. Alternatively, at the request of the project proponent, representatives of the Implementing Entity and U.S. Fish and Wildlife Service (USFWS) may conduct site visits to inspect the unique characteristics of specific project sites and may approve reductions of the 250-foot buffer. Buffer reductions may be approved for all or portions of the site whenever reduced setbacks will maintain the hydrology of the vernal pool and achieve the same or greater habitat values as would be achieved by the 250-foot buffer.

2. Activities inconsistent with the maintenance of vernal areas within the buffers, including all portions of the onsite watershed, will be prohibited. Inconsistent activities include altering existing topography; placing new structures within the buffers; dumping; building new roads or trails; removing or disturbing existing vegetation; installing storm drains; and using pesticides or other toxic chemicals.

3. Field crew personnel will participate in an USFWS-approved worker environmental awareness program. A qualified biologist approved by USFWS will inform all field crew personnel about the seasonal life-cycles of listed vernal pool invertebrates and the importance of avoiding their habitat.

Terrestrial Species

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Avoidance and Minimization Measures:

1. Prior to the start of proposed project activities, a qualified Corps of Engineers (Corps) Biologist shall inspect the areas to be disturbed for the beetle, or its habitat, and shall inform the Contractor or construction supervisors about the possible presence of the valley elderberry longhorn beetle or elderberry plants.

2. Any avoided elderberry shrubs shall be temporarily fenced so that it is obvious that it/they are not to be disturbed (e.g., bright orange construction fencing). Adverse impacts can be avoided or minimized by staying at least 100 feet from the dripline of any elderberry plant with one or more stems measuring one inch or greater in diameter at ground level.

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T) (NMFS)
Oncorhynchus tshawytscha - winter-run chinook salmon (E) (NMFS)

Avoidance and Minimization Measure:

1. Survey crews will maintain a minimum distance of 300 feet from streams when water is present. Adjacent vegetation will neither be disturbed nor removed. Streams may only be traversed during the dry season (when water is not present), and only by foot. (Access to the project area for any of the above listed species will be limited exclusively via the Bear River to Dry Creek, which circumvents the dam at the Camp Far West Reservoir. High stream temperatures, however, are least conducive for any of the salmonid species.)

Amphibians

Western spadefoot toad (Scaphiopus hammondii)

The avoidance and minimization measures for western spadefoot toad are the same as those stated for California tiger salamander in the Draft Final Negative Declaration and Site Inspection/Removal Action Work Plan (November 2004).

Foothill yellow-legged frog (Rana boylii)

Avoidance and Minimization Measures:

1. Any work near or in suitable aquatic stream habitats will be conducted with a qualified biologist present.

2. Immediately prior to proposed project activities, surveys will be performed by a biological monitor in areas where foothill yellow-legged frog could potentially occur.

3. Avoid earth-disturbing activities within 300 feet from the banks of stream habitat. Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

Ambystoma californiense - California tiger salamander (P)

Avoidance and Minimization Measures:

1. Any work near or in suitable aquatic habitats during will be conducted with a USFWS-permitted biologist present.

2. Immediately prior to proposed project activities, surveys will be performed by a biological monitor in areas where the California tiger salamander (CTS) could potentially occur.

3. Avoid earth disturbing activities within 300 feet from the banks of aquatic habitat. Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

Rana aurora draytonii - California red-legged frog (T)

Avoidance and Minimization Measures:

1. Any work between the onset of heavy fall rains and June 1 will be done with a qualified biological monitor present.

2. Immediately prior to field activities, biological monitors will survey areas where the California red-legged frog could potentially occur.

3. Avoid earth disturbing activities within 300 feet from the banks of aquatic habitat. Confine movement of heavy equipment to existing roadways to avoid habitat disturbance.

Reptiles

Northwestern pond turtle (Clemmys marmorata marmorata)

Avoidance and Minimization Measures:

1. Any work near or in suitable aquatic habitats will be conducted with a qualified biologist present.

2. Immediately prior to proposed project activities, surveys will be performed by a biological monitor in areas where the northwestern pond turtle could potentially occur.

3. Avoid earth disturbing activities within 300 feet from the banks of aquatic habitat. Confine movement of heavy equipment to existing roadways to minimize potential disturbance.

4. If occupied habitat cannot be avoided, the pond turtles will be relocated to suitable nearby habitat selected with agreement of DFG.

Coast horned lizard (Phrynosoma coronatum frontale)

Avoidance and Minimization Measures:

1. A qualified biologist will conduct focused surveys for the coast horned lizard in suitable habitat that may be affected by project activity.

2. Surveys will be conducted during geophysical investigation but are best conducted prior to winter hibernation, and conducted at times of the day when coast horned lizards are most active and scat surveys can be used to indirectly estimate population size. The objective of the surveys is to estimate the extent of occupied habitat that overlaps with temporarily and permanently impacted areas. The estimated occupied area will be delineated on a map.

3. Avoid earth disturbing activities within 300 feet of the area estimated to be occupied by coast horned lizard. Confine movement of heavy equipment to existing roadways to minimize potential disturbance.

4. If occupied habitat cannot be avoided, evaluate the potential for exclusion, capture, and relocation of coast horned lizard with DFG and implement.

Thamnophis gigas - giant garter snake (T)

Avoidance and Minimization Measures:

1. Avoid construction activities within 250 feet from the banks of giant garter snake aquatic habitat. Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

2. Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as "Environmentally Sensitive Areas". All field crew personnel will be instructed to avoid these areas.

3 Field crew personnel will receive USFWS-approved worker environmental awareness training. This training instructs workers to recognize giant garter snakes and their habitat(s).

4. During the Geophysical survey, the project area will be surveyed for giant garter snakes. Survey of the project area will be repeated if a lapse in field activity of two weeks or greater has occurred. If a snake is encountered during any field activities, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed.

5. Any dewatered habitat will remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

6. After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel.

Clemmys marmorata marmorata - Northwestern pond turtle (SC)

Avoidance and Minimization Measures:

1. Avoid construction activities within 250 feet from the banks of Northwestern pond turtle habitat. Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

2. Any earth disturbing activities within habitat will be conducted between during the winter months to avoid impacts to turtles. Avoid activities during the breeding season, usually April 15 through August 1. During the spring months, contact the USFWS's Sacramento Office or the California Department of Fish and Game to determine if additional measures are necessary.

3. Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided turtle habitat within or adjacent to the project area as "Environmentally Sensitive Areas". All field crew personnel will be instructed to avoid these areas.

4. Field crew personnel will receive USFWS-approved worker environmental awareness training. This training instructs workers to recognize turtles and their habitat(s).

5. During the Geophysical survey, the project area will be surveyed for turtles. Survey of the project area will be repeated if a lapse in field activity of two weeks or greater has occurred. If a turtle is encountered during any field activities, activities shall cease until appropriate corrective measures have been completed or it has been determined that the turtle will not be harmed.

6. After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel.

Birds

Raptors and Migratory Birds

Avoidance and Minimization Measures:

1. If the geophysical survey and removal action occur during the raptor nesting season (February 1 – September 31), a focused survey for nesting raptors shall be conducted by a qualified biologist prior to construction activities to identify active nests within the areas that will be subject to the project activity and the immediate vicinity. All natural habitat occurring within 500 feet of the area to be investigated shall be surveyed for active raptor nests. If no active nests are found, no further mitigation is required.

2. If nesting raptors are found during focused surveys, the locations will be identified on a map and no project activity shall occur within 300 feet of an identified active nest until the young have fledged (as determined by a qualified biologist) or until the project proponent receives authorization from DFG to proceed.. If a qualified biologist and DFG determine project activity would not be likely to adversely affect the nest, DFG may authorize the project proponent to proceed. Through consultation with DFG measures will be developed to minimize impacts to raptors. Trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September to January).

3. Surveys will also be completed for migratory birds. If an active migratory bird nest is located, the location will be identified on a map. No project activity should occur within a 200 foot-wide buffer established around the nest. If the project activity must occur, the biologist will monitor the nesting bird's activity to determine if the disturbance results in nest abandonment. If the project activity is affecting the nesting birds, the activity will cease until the nesting is completed.

Western Burrowing Owl (Athene cunicularia hypugaea)

Avoidance and Minimization Measures:

1. Prior to any ground-disturbing activity, a qualified biologist shall conduct focused surveys for Burrowing Owls in grasslands within 300 feet of the areas that will be subject to the geophysical survey. If blow in place activates are required within 500 feet of nesting areas the approval from the Department of Fish and Game will be necessary. Surveys shall be conducted in accordance with DFG protocol.

2. If no Burrowing Owls and/or occupied burrows are found in the survey area, no further mitigation will be necessary.

3. If Burrowing Owls or occupied burrows are found, an appropriate buffer shall be established to avoid adverse effects to Burrowing Owls. A buffer of 165 feet would be required during the non-breeding season (September 1 through January 31), and a buffer of 250 feet would be required during the breeding season (February 1 through August 31). No project activity shall occur within the buffer areas.

4. If impacts to occupied burrows are unavoidable, onsite passive relocation techniques approved by DFG shall be used to encourage owls to move to alternative burrows outside the impact area. However, no occupied burrows shall be disturbed during the nesting season unless a qualified biologist verifies through non-invasive methods that the burrow is no longer occupied and consults with DFG.

Double-Crested Cormorant (Phalacrocorax auritus)

Avoidance and Minimization Measures:

1. Any work near or in suitable aquatic habitats will be conducted with a qualified biologist present.

2. Immediately prior to proposed project activities, surveys will be performed by a biological monitor in areas where the Double-Crested Cormorant could potentially occur.

3. Avoid earth disturbing activities within 300 feet of occupied habitat during the nesting and breeding season (March through mid-September). Confine movement of heavy equipment to existing roadways to minimize potential disturbance.

4. If project activities must be conducted within 300 feet of occupied habitat during the nesting and breeding season, Double-Crested Cormorants should first be excluded from nesting.

Greater Sandhill Crane (Grus canadensis tabida) and Long-Billed Curlew (Numenius americanus)

1. Any work near or in suitable aquatic habitats will be conducted with a qualified biologist present.

2. Immediately prior to proposed project activities, surveys will be performed by a biological monitor in areas where the Greater Sandhill Crane or Long-Billed Curlew could potentially occur.

3. If nesting locations are found, avoid earth disturbing activities within 300 feet from the banks of aquatic habitat. If blow in place activates are required within 500 feet of nesting areas the approval from the Department of Fish and Game will be necessary. Confine movement of heavy equipment to existing roadways to minimize potential disturbance.

Bank Swallow (Riparia riparia)

1. Bank Swallows are susceptible to disturbance during the nesting season (Prior to conducting any geophysical or removal action work during this period, a qualified biologist shall survey for the presence of swallows at and within the immediate vicinity of the planned activity if suitable habitat is present. If nesting swallows are present, no project activities shall occur within 300 feet of their nests between April 1 and July 30. If blow in place activates are required within 500 feet of nesting areas the approval from the Department of Fish and Game will be necessary.

Grasshopper Sparrow (Ammodramus savannarum)

1. Any work in grassland habitats will be conducted with a qualified biologist present.

2. Immediately prior to proposed project activities, surveys will be performed by a biological monitor in areas where the Grasshopper Sparrow could potentially occur.

3. Avoid project-related activities within 300 feet of Grasshopper Sparrow nests identified during the biological survey.

Yellow-Breasted Chat (Icteria virens)

1. Yellow-Breasted Chats are susceptible to disturbance during the nesting season (April through September). Prior to conducting any geophysical or removal action work during this period, a qualified biologist familiar with songs and calls shall survey for the presence of Yellow-Breasted Chats at and within the immediate vicinity of the planned activity if riparian habitat is present. If the species is found, no project activities shall occur within 300 feet of their habitat between April 1 and September 30. If blow in place activates are required within 500 feet of nesting areas the approval from the Department of Fish and Game will be necessary.

Haliaeetus leucocephalus - bald eagle (T)

1. During the Geophysical survey, a USFWS-permitted biologist will survey the project area for bald eagles. If a bald eagle is discovered during the survey, the biologist will also attempt to ascertain the presence of a nest, and they will notify the geophysical survey team and instruct them to avoid the area.

Additional Considered Species
Invertebrates

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Avoidance and Minimization Measures:

1. Establish a 250-foot buffer from the outer edge of all hydric vegetation associated with vernal pools and vernal swales. Alternatively, at the request of the project proponent, representatives of the Implementing Entity and USFWS may conduct site visits to inspect the unique characteristics of specific project sites and may approve reductions of the 250-foot buffer. Buffer reductions may be approved for all or portions of the site whenever reduced setbacks will maintain the hydrology of the vernal pool and achieve the same or greater habitat values as would be achieved by the 250-foot buffer.

2. Activities inconsistent with the maintenance of vernal areas within the buffers, including all portions of the onsite watershed, will be prohibited. Inconsistent activities include altering existing topography; placing new structures within the buffers; dumping, burning, and/or burying garbage or any other wastes or fill

materials; building new roads or trails; removing or disturbing existing vegetation; installing storm drains; and using pesticides or other toxic chemicals.

3. Field crew personnel will participate in a USFWS-approved worker environmental awareness program. A qualified biologist approved by USFWS will inform all field crew personnel about the seasonal life-cycles of listed vernal pool invertebrates and the importance of avoiding their habitat.

Birds

Agelaius tricolor - tricolored blackbird (SC))
Aquila chrysaetos – golden eagle (SC)
Asio otus – long-eared owl (SC)
Dendroica petechia sonorana – Sonoran yellow warbler (SC)

Avoidance and Minimization Measures:

1. Protect and enhance wetland and riparian systems, including non-native trees unless replaced by suitable natives, as they may provide nesting sites and foraging habitat.

2. Prohibit use of biocides and other toxins as well as shooting or other removal for pest control.

3. USFWS approved biological evaluations for projects and planning changes (e.g., road or other construction, changing land use such as grazing) will include, as relevant, an evaluation of the impacts or benefits to this species, including cumulative impacts.

4. Limit disturbance including vehicles, boats and off-road vehicle use in areas of potential habitat.

5. For the golden eagle, avoid disturbance of cliff nest sites.

Athene cunicularia hypugaea - western burrowing owl (SC)

Avoidance and Minimization Measures:

1. Avoid conducting geophysical surveys within 160 feet of occupied burrows during the non-breeding season (September 1 through January 31) or 250 ft during the breeding season (February 1 through August 31).

Buteo swainsoni - Swainson's hawk (CA)

Avoidance and Minimization Measures:

1. Surveys shall be conducted prior to any field activities in accordance with the California Department of Fish and Game (CDFG) and USFWS guidelines. The contractor shall preserve and protect trees at all sites including staging and borrow sites.

2. If Swainson's hawks are present within a ½ mile radius of the project site, field activities shall begin after August 15, when the Swainson's hawks are anticipated to have left their nest for the season, and before April 15, when the nesting hawks resume breeding activities.

Laterallus jamarcensis coturniculus-California black rail (CA)

Avoidance and Minimization Measures:

1. Avoid construction activities within 250 feet from the footprint of freshwater marshes, seeps, wetlands that border on riparian flows and associated upland habitat.

2. If it is deemed necessary to conduct construction activities within a suspected California black rail habitat, the appropriate consultation will be conducted with CDFG and USFWS prior to initiation of these activities. Any earth disturbing activities within habitat will be conducted between October 1 and March 1. The breeding/nesting season is from April to August and no activities will be conducted near these habitats during this timeframe.

3. Confine clearing to the minimal area necessary to facilitate construction activities. Designate any observed potential habitat within or adjacent to the project area as "Environmentally Sensitive Areas" by gathering GPS data for future mapping. All field crew personnel will be instructed to avoid these areas.

4. Field crew personnel will receive USFWS/CDFG-approved worker environmental awareness training. This training instructs workers to recognize California black rail and their habitat(s).

5. If a California black rail is encountered during any field activities, activities shall cease, the location and associated information will be recorded and the area will be vacated.

6. After completion of construction activities, remove any temporary fill and construction debris and restore disturbed areas to pre-project conditions. Restoration work may include such activities as replanting species removed from wetlands or associated upland areas.

Pallid bat (Antrozous pallidus) and Pale big-eared bat (Plecotus townsendii pallescens)

1. A qualified biologist should conduct surveys to determine whether affected structures, mature trees, or other habitat (e.g., crevices) provide hibernacula, nursery colony, or roosting habitat.

2. If surveys conducted during the fall do not reveal any bat species, then the action should occur within three days in order to prevent the destruction of any bats that move into the area after the survey.

3. If the site is being used as a winter roost, then the action should occur either prior to or after hibernation.

4. If spring surveys are conducted and reveal that the site is being used as a nursery colony, the action should not occur until after August 15, when the pups are weaned and are free-flying.

Marysville kangaroo rat (Dipodomys californicus eximus)

Avoidance and Minimization Measures:

4. Any work near or in suitable habitats will be conducted with a qualified biologist present.

5. Immediately prior to proposed project activities, surveys will be performed by a biological monitor in areas where Marysville kangaroo rat could potentially occur.

6. Avoid earth-disturbing activities within 50 feet of potential burrows. Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

Species with Critical Habitat Proposed or Designated in the Brown Valley, Camp Far West, Rough and Ready, Smartville, Wheatland, and Wolf Quads

Central Valley fall/late fall-run chinook (C)
vernal pool invertebrates (PX)
vernal pool plants (PX)

**Construction is defined as intrusive investigation.

KEY:

(E) Endangered – Listed (in the Federal Register) as being in danger of extinction.
(T) Threatened – Listed as likely to become endangered within the foreseeable future.
(NMFS) Species under the jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
Critical Habitat – Area essential to the conservation of a species.
(C) Candidate – Species by which the Fish & Wildlife Service has sufficient data to indicate that biological vulnerability exists which would support proposals to list as threatened or endangered; or, the Fish & Wildlife Service has proposed the species for listing but have not yet issued a final rule.
(CA) Listed by the State of California but not be the Fish & Wildlife Service.
(SC) Species of Concern – Other species of concern to the Sacramento Fish & Wildlife Office.

5. Culturally Sensitive Areas

There are several culturally sensitive areas in Volumes 2 and 3, although only the registered archeologists working with Earth Tech, Inc. and the U.S. Army Corps of Engineers know the exact locations of the sites. Archaeologists surveyed portions of Volumes 2 and 3 and designated various areas as being culturally sensitive (Figure 5). One historical transportation corridor passes through middle of the Volume 3 area, running north to south near the border of Yuba and Nevada Counties and another passes through the southern portion of the site, near the Camp Far West Reservoir. The impact to the culturally sensitive areas and the risk to project completion is extremely low during the Site Inspection work. It may be necessary to survey the remaining area before intrusive fieldwork can commence.

6. Occurrence of Habitat Management Plan Species

Several areas in Volumes 2 and 3 have been identified as being environmentally sensitive (Figure 6). These areas may contain vernal pools and other habitats that provide an environment for listed, threatened, or candidate species. The impact to the environmentally sensitive areas and the risk to project completion is extremely low during the Site Investigation work. It may be necessary to reevaluate the impacts and risks when intrusive fieldwork begins.

The following is a list of Federal endangered and threatened species that may be affected by the surveying and removal actions in the Rough and Ready, Wolf, Smartville, Browns Valley, Wheatland, and Camp Far West 7 ½ minute quads. The database, obtained by John Suazo, Biological Resources Specialist with the U.S. Army Corps of Engineers, was last updated on March 1, 2004.

6.1 Listed Species

Invertebrates

Branchinecta conservatio - Conservancy fairy shrimp (E)
Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T) (NMFS)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T) (NMFS)

Amphibians

California tiger salamander-Ambystoma californiense (T) (SSC)
California red-legged frog-Rana aurora draytonii (T) (SSC)
Foothill Yellow –legged frog-Rana boylii(T) (SSC)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

6.2 Proposed Species:

Birds

Charadrius montanus - mountain plover (PT)

6.3 Candidate Species:

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C) (NMFS)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

6.4 Species of Concern:

Invertebrates

Goeracea oregona - Sagehen Creek goracean caddisfly (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Acipenser medirostris - green sturgeon (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Rana boylii - foothill yellow-legged frog (SC)
Spea hammondii - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC) (SSC
Phrynosoma coronatum frontale - California horned lizard (SC) (SSC)
Coast horned lizard-Phrynosoma coronatum frontale (SSC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Ammodramus savannarum - grasshopper sparrow (SC)
Asio flammeus - short-eared owl (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Chlidonias niger - black tern (SC)
Cypseloides niger - black swift (SC)
Elanus leucurus - white-tailed (black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Spizella breweri - Brewer's sparrow (SC)
Toxostoma redivivum - California thrasher (SC)
Long Eared Owl-Asio Otus (SSC)
Yellow Warbler-Dendrocia petechis (SSC)
Greater sandhill crane - Grus Canadensis tabida – (SSC)
Western burrowing owl - Athene cunicularia hypugea (SSC)
Double crested cormorant - Phalacrocorax auritus (SSC)
Bank Swallow-Riparia riparia (SSC)
Grasshopper Sparrow-Ammodramus savannarum (SSC)
Yellow Breasted Chat-Icteria virens (SSC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Dipodomys californicus eximius - Marysville Heermann's kangaroo rat (SC)
Euderma maculatum - spotted bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis evotis - long-eared myotis bat (SC)
Myotis thysanodes - fringed myotis bat (SC)

Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)
Pallid bat-Antrozous pallidus (SSC)
Marysville kangaroo rat - Dipodomys californicus eximus (SSC)

6.5 Species with Proposed or Designated Critical Habitat:

Fish

Central Valley fall/late fall-run chinook (C)
Central Valley spring-run chinook (T)

6.6 Non-listed Special Status Plant Species:

Plant

Downingia pusilla – Dwarf Downingia (SC)
Brandegee's Clarkia - Clarkia biloba (SSC)
Dawrf downingia - Downgia pulsilla (SSC)
Lengene limosa - Lengene limosa (SSC)

Key:
(E) Endangered - Listed (in the Federal Register) as being in danger of extinction.
(T) Threatened - Listed as likely to become endangered within the foreseeable future.
(P) Proposed - Officially proposed (in the Federal Register) for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Marine Fisheries Service.
Critical Habitat - Area essential to the conservation of a species.
(PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
(C) Candidate - Candidate to become a proposed species.
(CA) Listed by the State of California but not by the Fish & Wildlife Service.
(D) Delisted - Species will be monitored for 5 years.
(SC) Species of Concern/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
(SSC) Species of Local Concern Department of Fish and Game

7. Ranges, Targets, and Training Areas

The accompanying figures (Figures 7a –7d) illustrate the ranges, targets, and training areas in the large Volume 3 area. These areas are either located completely within the boundaries of Volume 3 or are within close proximity and have buffer zones that have a likelihood of extending into the Volume 3 area. Any physical features may be visible from aerial photographs, but because the area was used over 50 years ago, most physical structures, targets, and firing points no longer exist. There are some instances of ground scaring or other types of physical evidence indicative of past military activity. Figure 8 notes areas where ground scaring or other physical evidence has been documented in historical photographs.